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UNITED STATES OF AMERICA
POSTAL REGULATORY COMMISSION
WASHINGTON, D.C. 20268-0001

Inquiry Concerning Postal Service
City Carrier Costs

Docket No. PI2017-1

CHAIRMAN'S INFORMATION REQUEST NO. 4

(Issued October 31, 2017)

To further assist the Commission in its inquiry concerning the Postal Service's response to Order No. 2792,[1] its responses to the Chairman's Information Requests in this docket,[2] and its status report on the top-down equation,[3] the Postal Service is requested to provide written responses to the following questions and requests for information. The responses should be provided as soon as possible, but no later than November 28, 2017.

1. In Docket No. RM2015-7, the Postal Service noted some of the challenges that it faces in utilizing its Product Tracking and Reporting (PTR) system to track returned mail pieces. Specifically, the Postal Service stated that there are difficulties associated with tracking the record for returned mail pieces because

[1] Docket No. RM2015-7, Response of the United States Postal Service to Commission Order No. 2792, February 16, 2016 (Response to Order No. 2792).

[2] Responses of the United States Postal Service to Questions 1-7 of Chairman's Information Request No. 1, June 30, 2017 (Response to CHIR No. 1); Responses of the United States Postal Service to Questions 1-10 of Chairman's Information Request No. 2, July 25, 2017 (Response to CHIR No. 2).

[3] Notice of the United States Postal Service Regarding Status Report on Top-Down Carrier Street Time Equation, August 18, 2017, file "Status.Report.Top.Down.Model.pdf" (Status Report on the Top-Down Equation).

they "may have multiple delivery events for a single barcode, and determining the correct treatment of these pieces can be complex."[4]

a. Please discuss how multiple delivery attempts are identified in the PTR and Delivery Operations Information System (DOIS) databases for accountable mail and packages. In your response, please refer to and identify the relevant database variables provided in the respective folders for the PTR and DOIS databases in Library Reference USPS-PI2017-1/1.[5]

b. Please provide a list of the PTR codes used for attempted deliveries and define each code.[6]

2. In its Docket No. RM2015-7, Response to UPS Pleading, the Postal Service explained that it uses "operational data to directly assign all costs to products" for Sunday delivery because "[t]here is no model, in the usual sense of a set of econometric or engineering equations or proportions that are used to determine cost pools, variabilities or distribution keys." Docket No. RM2015-7, Response to UPS Pleading at 13. The Postal Service stated that it "has a record of the actual costs incurred for Sunday delivery, and simply assigns all of those costs to the packages being delivered on Sunday." *Id.* Please specify and describe the operational data sources that are used to directly assign all Sunday costs to packages delivered on Sunday.

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[4] Docket No. RM2015-7, Response of the United States Postal Service to UPS Pleading Regarding Commission Order No. 2792, March 11, 2016, at 11 (Docket No. RM2015-7, Response to UPS Pleading).

[5] The PTR variables were provided in Library Reference USPS-PI2017-1/1, July 25, 2017, folder "ChIR.2.Q.10.PTR," Excel file "PTR_Data_Dictionary_ODS.xlsx," and the DOIS variables were provided in Library Reference USPS-PI2017-1/1, folder "ChIR.2.Q.10.DOIS," Excel file "DOIS51Structure61P-140723.xlsx."

[6] The "Comments" section for the PTR variable "ATMTD_EVENT_DATETIME" contains "[t]he earliest attempted delivery event from USPS event code 02 or code 51-57." *See* Library Reference USPS-PI2017-1/1, folder "ChIR.2.Q.10.PTR," Excel file "PTR_Data_Dictionary_ODS.xlsx," row 12,790.

3. In its Response to CHIR No. 1, the Postal Service states that it has "turned its attention away from attempting a special field study for updating Special Purpose Route [(SPR)] costs to the use of operational data." Response to CHIR No. 1, question 4. Please discuss any other options that the Postal Service is considering for updating the SPR costs. Please include in your response any anticipated schedules and resources for those options.

4. In its Response to CHIR No. 1, the Postal Service states that "[m]any SPR carriers did perform the correct scans, but the proportion correctly recording their daily activity was too low to produce a data set that would yield data of the quality and magnitude required by the Commission." Response to CHIR No. 1, question 4.

   a. Please discuss the reasons why the proportion of carriers correctly recording their daily activity was too low to yield adequate data.

   b. Please discuss whether using full-time SPR carriers' scans rather than overall SPR carriers' scans would lead to the same conclusion.

5. In Docket No. RM2017-9, the Postal Service described firm pickups and bulk delivery as SPR carrier activities.[7] In its Response to CHIR No. 1, however, the Postal Service refers to SPR carriers recording "'Load Vehicle' scans when they [are] away from their base facility in the middle of their runs[]" as errors. Response to CHIR No. 1, question 4. Please explain how loading and unloading the vehicle during firm pickups and bulk delivery away from the carriers' base facility in the middle of their runs would be recorded.

6. In its Response to Order No. 2792, the Postal Service stated that "[t]he Time Attendance Collection System (TACS) can be used to form separate cost pools for [Labor Distribution Code (LDC)] 23 and LDC 27, but these operational data do

[7] *See* Docket No. RM2017-9, Responses of the United States Postal Service to Questions 1-15, 19-20, and 23 of Chairman's Information Request No. 1, August 9, 2017, question 13.a.

not provide any further detail on the time[] required to perform the different specific activities performed by city SPR carriers. Thus, use of operation data is limited to estimating single-equation, 'top-down' equations for each of the two LDCs." Response to Order No. 2792 at 17. Please report any progress on the analysis related to "top-down" equations for these two LDCs and provide any preliminary results, if available. If the Postal Service has not yet begun this analysis, please provide an approximate schedule for it, including a projected date for completion.

7. In its Response to CHIR No. 2, the Postal Service states that for Mobile Delivery Devices (MDDs) to be used for customer collection volume, "a barcode would have to be used to prompt the carrier to enter customer collection volume at some point along the route." Response to CHIR No. 2, question 2.b. Please discuss how customer collection letters, flats, and parcels would be counted and entered into the MDDs. Please include in your response how the MDD customer collection volume counting process would differ from or be similar to the City Carrier Collection Mail Volume and Source Study (CCCMVSS) process.[8]

8. In the Status Report on the Top-Down Equation, the Postal Service states that "the acquisition of volumes of mail collected by city carriers from customers' receptacles" will require a special field study or a special application of the carriers' MDDs. Status Report on the Top-Down Equation at 2.

   a. Please discuss the feasibility of reprogramming the carriers' MDDs for the acquisition of mail volumes collected from customer receptacles.

[8] In its Response to Order No. 2792, the Postal Service stated that "[i]f recording of collection mail were to be done on a daily basis, it would be appropriate for carriers to record collected letters and flats in terms of linear measurements as they did in the [CCCMVSS] rather than conduct piece counts." Response to Order No. 2792 at 10. The Postal Service noted that collected parcels, however, would be entered with piece counts. *Id.* at 11.

b. Please provide approximate estimates of the time and cost required to develop and implement a special application for MDDs referenced in the Status Report on the Top-Down Equation.

9. In its Response to Order No. 2792, the Postal Service stated that it believed that "five to seven percent of delivered parcels do not have tracking barcodes, and [that the PTR] would not count those parcels. However, the proportion of parcels without tracking barcodes should decrease with time." Response to Order No. 2792 at 8.

a. Please specify the current percentage of delivered parcels that do not have tracking barcodes.

b. Please explain the methodology, and identify the sources, for determining the percentage of parcels that do not have tracking barcodes.

10. In its Response to CHIR No. 2, the Postal Service provides a list of variables recorded in the DOIS database.[9] Please provide a data dictionary that includes the descriptive meanings of the variables and the meanings of the codes used within those variables, where applicable.

11. In its Response to CHIR No. 2, the Postal Service states that the City Carrier Cost System-Special Purpose Route (CCCS-SPR) "does not currently sample Collection routes, so that a large percentage of SPR time could not be analyzed." Response to CHIR No. 2, question 6.d.

a. Please explain why the CCCS-SPR does not currently sample Collection routes.

b. Please describe the distribution key source and process for distributing street Collection route costs to products.

[9] Response to CHIR No. 2, question 10; *see* Library Reference USPS-PI2017-1/1, folder "ChIR.2.Q.10.DOIS," Excel file "DOIS51Structure61P-140723.xlsx," column "NAME."

12. The Postal Service's top-down model prototype uses the ZIP Code-day unit of observation. *See* Status Report on the Top-Down Equation at 17. By contrast, the CCCS uses "route-days" as its first-stage sample selection unit.[10] The CCCS randomly selects route-days within each geographically-ordered sample stratum. *Id.*

    a. Please describe how the prototype top-down model's ZIP Codes were selected. Please describe the ZIP Codes selected in the same level of technical detail as that provided in Library Reference PRC-RM2011-3-LR-1.[11]

    b. Please describe how the prototype top-down model's ZIP Code-days differ from the CCCS's route-days/geographic indicators.

    c. Please specify the geographic level used in the CCCS sample selection process for the "geographically ordered" step noted in the question preface.

13. In its Status Report on the Top-Down Equation, the Postal Service states that it also collected data for September 2016 and combined it with the July 2016 data in order to re-estimate the top-down model on a larger data set. Status Report on the Top-Down Equation at 32. The Postal Service also states that multicollinearity "will almost certainly be a major problem for estimating a top-down model." *Id.* at 13.

    a. Please discuss the reasons why September was chosen rather than August or another month.

    b. Please discuss whether the Postal Service has attempted to use an expanded dataset in order to estimate a top-down equation (*e.g.,* by

[10] *See* Docket No. ACR2016, Library Reference USPS-FY16-34, December 29, 2016, file "USPS-FY16-34_CCCS_Preface_Final.pdf," at 4.

[11] Docket No. RM2011-3, Library Reference PRC-RM2011-3-LR1, August 13, 2013.

including data for more than 300 ZIP Codes or additional days outside the months of July and September). If so, please describe the modifications that the Postal Service made to the input datasets, providing all of the applicable documentation, including SAS data files and regression outputs.

c. Please indicate whether the Postal Service has applied any methods for analyzing and curing multicollinearity (*e.g*., principal component analysis or ridge regression). If so, please discuss the effectiveness of these methods and provide all of the supporting documentation. If the Postal Service has not applied any methods in an attempt to decrease multicollinearity in the top-down models, please explain why not.

14. Please refer to Library Reference USPS-PI2017-1/2, August 18, 2017, folder "SAS Data Sets," "study_dois_pa_vol_july.sas7bdat" and "study_dois_pa_vol_july_sept.sas7bdat," the input datasets for the Postal Service's top-down models. These two files include FY 2016 data for the month of July and the combined months of July and September.

a. Please describe any differences between the resources (*e.g*., time, software, hardware capability, and cost) required to generate these two datasets.

b. Please explain how expanding these datasets to include data for additional months would affect the resources required to generate SAS datasets and/or estimate regression models.

c. Please explain how expanding these datasets to include data for additional ZIP Codes would affect the resources required to generate SAS datasets and/or estimate regression models.

d. Please identify the major factors that create the upper limits for expanding the input datasets by adding data on additional months or ZIP Codes.

15. Please indicate whether the Postal Service considered multiple methods in estimating its prototype top-down models' regression parameters. If so, please explain why these methods were rejected and the ordinary least squares (OLS) regression fitting method was selected. If the Postal Service only considered OLS, please explain why it did not consider other methods, such as feasible generalized least squares (FGLS).

16. In the Status Report on the Top-Down Equation, the Postal Service indicates that the differences between FSS ZIP Codes and non-FSS ZIP Codes might be due to "reasons other than the existence of FSS processing." Status Report on the Top-Down Equation at 24. In Tables 9 and 10 of the referenced report, the Postal Service provides the regression coefficients for the variables included in the top-down equation and estimated using data for either FSS ZIP Codes (Table 9) or non-FSS ZIP Codes (Table 10). *Id*. at 26, 28.

    a. Please explain the reasons for the notable differences between the regression coefficients estimated for the same variables and presented in Table 9 and Table 10.

    b. Please discuss whether the Postal Service has performed any diagnostic tests (*e.g.*, Durbin-Wu-Hausman test) for possible inconsistency of the OLS estimator due to unobserved differences between FSS ZIP Codes and non-FSS ZIP Codes. If such tests were conducted, please provide the output and explain whether they support the application of the OLS estimator.

17. In the Status Report on the Top-Down Equation, the Postal Service indicates that it detected heteroscedasticity related to ZIP Code size by performing the White test. Status Report on the Top-Down Equation at 18. Please indicate whether the Postal Service has performed any other diagnostic tests (*e.g.,* the Breusch-Pagan or Honda tests) to detect the presence of ZIP Code-specific heteroscedasticity. If such tests were conducted, please provide their outputs

and explain whether the results of these tests support the application of the OLS estimator the Postal Service used for its top-down models.

18. Please discuss the efforts that the Postal Service has made to explore the panel structure of input data used for top-down equations (*e.g*., investigating the use of random effects or fixed effects).

19. In Docket No. RM2011-3, in the Scoping Study Report,[12] the Postal Service stated that "[r]esearch in the area of carrier street time has identified two functional forms that can be successfully used in estimating street time variabilities: the quadratic form and translog form." Scoping Study Report at 45-46. The Postal Service also indicated that the translog form "cannot be used to estimate equations in which the right-hand-side variables take zero values." *Id*. at 46. The Postal Service also states that because "certain cost drivers…can take on zero values at both the route and ZIP Code levels," the "translog form has a major drawback for estimating street time equation." *Id.*

    a. Please provide all of the technical documentation underlying the above-referenced research and supporting the conclusion that only two functional forms (quadratic and translog) can be successfully used in estimating street time variabilities. In your response, please identify which other functional forms were investigated and explain why each was rejected.

    b. Please confirm that the Postal Service has not tested any alternative functional forms for its top-down prototype models. If not confirmed, please explain why those alternative functional forms were rejected. Please include regression outputs and any other applicable documentation.

[12] Docket No. RM2011-3, Scoping Study Report of the United States Postal Service, May 25, 2012 (Scoping Study Report).

20. In the Status Report on the Top-Down Equation, the Postal Service states that "the top-down model was not able to provide reliable estimates of an accountable elasticity and marginal time" because accountable volumes are "so small relative to letter and flat volumes." Status Report on the Top-Down Equation at 39.

    a. Please indicate whether the Postal Service has investigated whether combining accountable mail with deviation parcels could improve estimates of accountable elasticity and marginal time. Please provide the results of such investigation including SAS data files and regression outputs, if applicable.

    b. Please indicate whether the Postal Service has investigated the feasibility of eliminating some or all of the variables related to the accountable mail from the prototype top-down model. If the Postal Service has attempted to do so, please discuss the resulting impact on the estimated coefficients and statistics of the regression equation. If the Postal Service has not considered such elimination or believes that it is not feasible, please explain why not.

    c. Please discuss the feasibility of expanding the input datasets by including delivery routes with higher accountable mail volumes.

By the Chairman.

Robert G. Taub